SEQUENCE LISTING

<110>    WYETH HOLDING CORPORATION.; KUNZ, ARTHUR ET AL.

<120>    CALICHEAMICIN DERIVATIVE-CARRIER CONJUGATES

<160>    61

<170>    SeqWin99, version 1.02

<210>    1
<211>    5
<212>    PRT
<213>    mouse

<220>
<223>    5/44g CDR-H1

<220>
<221>

<400>    1
Asn Tyr Trp Ile His
1               5

<210>    2
<211>    17
<212>    PRT
<213>    mouse

<220>
<223>    mouse monoclonal 5/44 CDR-H2gL1 T3

<220>
<221>

<400>    2
Gly Ile Asn Pro Gly Asn Asn Tyr Thr Thr Tyr Lys Arg Asn Leu Lys
1               5                   10                  15

Gly

<210>    3
<211>    12
<212>    PRT
<213>    mouse

<220>
<223>    mouse monoclonal 5/44 CDR-H3

<220>
<221>

```
<400>    3
Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr
1               5                   10

<210>    4
<211>    16
<212>    PRT
<213>    mouse

<220>
<223>    mouse monoclonal 5/44 CDR-L1

<220>
<221>

<400>    4
Arg Ser Ser Gln Ser Leu Ala Asn Ser Tyr Gly Asn Thr Phe Leu Ser
1               5                   10                  15

<210>    5
<211>    7
<212>    PRT
<213>    mouse

<220>
<223>    mouse monoclonal 5/44 CDR-L2

<220>
<221>

<400>    5
Gly Ile Ser Asn Arg Phe Ser
1               5

<210>    6
<211>    9
<212>    PRT
<213>    mouse

<220>
<223>    mouse monoclonal 5/44CDR-L3

<220>
<221>

<400>    6
Leu Gln Gly Thr His Gln Pro Tyr Thr
1               5

<210>    7
<211>    113
<212>    PRT
<213>    mouse
```

2

<220>
<223>  mouse monoclonal 5/44g VL domain

<220>
<221>

<400>    7
Asp Val Val Val Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Phe Gly
1               5               10              15

Asp Gln Val Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Ala Asn Ser
            20              25              30

Tyr Gly Asn Thr Phe Leu Ser Trp Tyr Leu His Lys Pro Gly Gln Ser
        35              40              45

Pro Gln Leu Leu Ile Tyr Gly Ile Ser Asn Arg Phe Ser Gly Val Pro
    50              55              60

Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65              70              75              80

Ser Thr Ile Lys Pro Glu Asp Leu Gly Met Tyr Tyr Cys Leu Gln Gly
            85              90              95

Thr His Gln Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
            100             105             110

Arg


<210>    8
<211>    121
<212>    PRT
<213>    mouse monoclonal 5/44 VH domain

<220>
<223>    mouse monoclonal 5/44 VH domain

<220>
<221>

<400>    8
Glu Val Gln Leu Gln Gln Ser Gly Thr Val Leu Ala Arg Pro Gly Ala
1               5               10              15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr
            20              25              30

Trp Ile His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
        35              40              45

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Thr Thr Tyr Lys Arg Asn Leu
    50              55              60

3

```
Lys Gly Lys Ala Thr Leu Thr Ala Val Thr Ser Ala Ser Thr Ala Tyr
65                  70              75                  80

Met Asp Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly
            100             105             110

Gln Gly Thr Leu Val Thr Val Ser Ser
        115             120
```

```
<210>   9
<211>   13
<212>   PRT
<213>   Artificial Sequence

<220>
<223>   cH

<220>
<221>

<400>   9
Gly Asn Asn Tyr Thr Thr Tyr Lys Arg Asn Leu Lys Gly
1               5               10

<210>   10
<211>   13
<212>   PRT
<213>   Artificial Sequence

<220>
<223>   N55Q

<220>
<221>

<400>   10
Gly Asn Gln Tyr Thr Thr Tyr Lys Arg Asn Leu Lys Gly
1               5               10

<210>   11
<211>   13
<212>   PRT
<213>   Artificial Sequence

<220>
<223>   T57A

<220>
<221>

<400>   11
```

4

```
Gly Asn Asn Tyr Ala Thr Tyr Lys Arg Asn Leu Lys Gly
1               5                   10
```

<210> 12
<211> 13
<212> PRT
<213>    Artificial Sequence

<220>
<223>    T57V

<220>
<221>

<400>    12
```
Gly Asn Asn Tyr Val Thr Tyr Lys Arg Asn Leu Lys Gly
1               5                   10
```

<210> 13
<211> 17
<212> PRT
<213>    Artificial Sequence

<220>
<223>    CDR-H2 (T57)A H'

<220>
<221>

<400>    13
```
Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Lys Arg Asn Leu Lys
1               5                   10                  15

Gly
```

<210> 14
<211> 13
<212> PRT
<213>    Artificial Sequence

<220>
<223>    K60R

<220>
<221>
<400>    14
```
Gly Asn Asn Tyr Thr Thr Tyr Arg Arg Asn Leu Lys Gly
1               5                   10
```

<210> 15
<211> 17
<212> PRT
<213>    Artificial Sequence

<220>
<223>    CDR-H2 (K60R)R H''

<220>
<221>

<400>    15
Gly Ile Asn Pro Gly Asn Asn Tyr Thr Thr Tyr Arg Arg Asn Leu Lys
1                 5                   10                  15

Gly


<210>    16
<211>    17
<212>    PRT
<213>    Artificial Sequence

<220>
<223>    CDR-H2 (T57A K60R) H'''

<220>
<221>

<400>    16
Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Asn Leu Lys
1                 5                   10                  15

Gly


<210>    17
<211>    70
<212>    PRT
<213>    Homo sapien

<220>
<223>    DPK9

<220>
<221>

<400>    17
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1                 5                   10                  15

Asp Arg Val Thr Ile Thr Cys Trp Tyr Gln Gln Lys Pro Gly Lys Ala
            20                  25                  30

Pro Lys Leu Leu Ile Tyr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly
        35                  40                  45

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp
    50                  55                  60


6

Phe Ala Thr Tyr Tyr Cys
65                  70


<210>    18
<211>    11
<212>    PRT
<213>    Homo sapiens

<220>
<223>    JK1

<220>
<221>

<400>    18
Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg
1                5                   10


<210>    19
<211>    113
<212>    PRT
<213>    Artificial Sequence

<220>
<223>    gL1

<220>
<221>

<400>    19
Asp Val Gln Val Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1                5                   10                  15

Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Gln Ser Leu Ala Asn Ser
             20                  25                  30

Tyr Gly Asn Thr Phe Leu Ser Trp Tyr Leu His Lys Pro Gly Lys Ala
         35                  40                  45

Pro Gln Leu Leu Ile Tyr Gly Ile Ser Asn Arg Phe Ser Gly Val Pro
    50                  55                  60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
65                  70                  75                  80

Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Gly
             85                  90                  95

Thr His Gln Pro Tyr Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
             100                 105                 110

Arg


<210>    20


7

```
<211>    113
<212>    PRT
<213>    Artificial Sequence

<220>
<223>    gL2

<220>
<221>

<400>    20
Asp Val Val Val Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1                   5                   10                  15

Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Gln Ser Leu Ala Asn Ser
            20                  25                  30

Tyr Gly Asn Thr Phe Leu Ser Trp Tyr Leu His Lys Pro Gly Lys Ala
        35                  40                  45

Pro Gln Leu Leu Ile Tyr Gly Ile Ser Asn Arg Phe Ser Gly Val Pro
    50                  55                  60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
65                  70                  75                  80

Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln Gly
                85                  90                  95

Thr His Gln Pro Tyr Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
            100                 105                 110

Arg


<210>    21
<211>    80
<212>    PRT
<213>    Homo  sapiens

<220>
<223>    DP7

<220>
<221>

<400>    21
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1                   5                   10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Trp Val
            20                  25                  30

Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Lys Phe Gln Gly
        35                  40                  45
```

```
Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr Met Glu
    50              55          60
```

```
Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg
65              70          75                  80
```

<210> 22
<211> 11
<212> PRT
<213> Homo sapiens

<220>
<223> JH4

<220>
<221>

<400> 22
```
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
1           5               10
```

<210> 23
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> gH1

<220>
<221>

<400> 23
```
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1           5               10              15
```

```
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr
            20              25              30
```

```
Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35              40              45
```

```
Gly Gly Ile Asn Pro Gly Asn Gln Tyr Thr Thr Tyr Lys Arg Asn Leu
    50              55          60
```

```
Lys Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr
65              70          75                  80
```

```
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
            85              90              95
```

```
Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly
            100             105             110
```

```
Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

```
<210>   24
<211>   121
<212>   PRT
<213>   Artificial Sequence

<220>
<223>   gH4

<220>
<221>

<400>   24
```

```
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1               5                   10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr
            20                  25                  30

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Asn Leu
    50                  55                  60

Lys Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr
65                  70                  75                  80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

```
<210>   25
<211>   121
<212>   PRT
<213>   Artificial Sequence

<220>
<223>   gH5

<220>
<221>

<400>   25
```

```
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1               5                   10                  15
```

```
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr
            20                  25                  30

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
            35                  40                  45

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Asn Leu
    50                  55                  60

Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr
65                  70                  75                  80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser
            115                 120
```

```
<210>    26
<211>    121
<212>    PRT
<213>    Artificial Sequence

<220>
<223>    gH6

<220>
<221>

<400>    26
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1                   5                   10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr
            20                  25                  30

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
            35                  40                  45

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Lys Phe
    50                  55                  60

Gln Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr
65                  70                  75                  80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser
```

```
        115                       120

<210>   27
<211>   121
<212>   PRT
<213>   Artificial Sequence

<220>
<223>   gH7

<220>
<221>

<400>   27
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1               5                   10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe Thr Asn Tyr
            20                  25                  30

Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45

Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Lys Phe
        50                  55                  60

Gln Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr
65                  70                  75                  80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala Tyr Trp Gly
            100                 105                 110

Gln Gly Thr Leu Val Thr Val Ser Ser
            115                 120

<210>   28
<211>   239
<212>   PRT
<213>   Artificial Sequence

<220>
<223>   Full sequence of grafted light chain

<220>
<221>

<400>   28
Met Lys Leu Pro Val Arg Leu Leu Val Leu Leu Leu Phe Trp Ile Pro
1               5                   10                  15

Ala Ser Arg Gly Asp Val Gln Val Thr Gln Ser Pro Ser Ser Leu Ser
            20                  25                  30
```

12

```
Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Gln Ser
        35              40              45

Leu Ala Asn Ser Tyr Gly Asn Thr Phe Leu Ser Trp Tyr Leu His Lys
    50              55              60

Pro Gly Lys Ala Pro Gln Leu Leu Ile Tyr Gly Ile Ser Asn Arg Phe
65              70              75              80

Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
                85              90              95

Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr
        100             105             110

Cys Leu Gln Gly Thr His Gln Pro Tyr Thr Phe Gly Gln Gly Thr Lys
        115             120             125

Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro
    130             135             140

Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu
145             150             155             160

Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp
            165             170             175

Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
        180             185             190

Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys
        195             200             205

Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln
    210             215             220

Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225                 230             235
```

```
<210>   29
<211>   781
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   Full sequence of grafted light chain

<220>
<221>

<400>   29
ttcgaagccg ccaccatgaa gttgcctgtt aggctgttgg tgcttctgtt gttctggatt    60
cctgcttccc ggggtgacgt tcaagtgacc cagagcccat ccagcctgag cgcatctgta   120
ggagaccggg tcaccatcac ttgtagatcc agtcagagtc ttgcaaacag ttatgggaac   180
```

```
accttttttgt cttggtatct gcacaaacca ggtaaagccc cacaattgct catctacgga    240
atctctaaca gatttagtgg tgtaccagac aggttcagcg gttccggaag tggtactgat    300
ttcaccctca cgatctcgtc tctccagcca gaagatttcg ccacttatta ctgtttacaa    360
ggtacacatc agccgtacac attcggtcag ggtactaaag tagaaatcaa acgtacggta    420
gcggccccat ctgtcttcat cttcccgcca tctgatgagc agttgaaatc tggaactgcc    480
tctgttgtgt gcctgctgaa taacttctat cccagagagg ccaaagtaca gtggaaggtg    540
gataacgccc tccaatcggg taactcccag gagagtgtca cagagcagga cagcaaggac    600
agcacctaca gcctcagcag caccctgacg ctgagcaaag cagactacga gaaacacaaa    660
gtctacgcct gcgaagtcac ccatcagggc ctgagctcgc ccgtcacaaa gagcttcaac    720
agggagagt gttagaggga gaagtgcccc cacctgctcc tcagttccag cctgggaatt    780
c                                                                   781
```

```
<210>    30
<211>    467
<212>    PRT
<213>    Artificial Sequence

<220>
<223>    Full sequence of grafted heavy chain

<220>
<221>

<400>    30
Met Asp Phe Gly Phe Ser Leu Val Phe Leu Ala Leu Ile Leu Lys Gly
1                 5                  10                 15

Val Gln Cys Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
            20                  25                 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Arg Phe
            35                  40                 45

Thr Asn Tyr Trp Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
        50                  55                 60

Glu Trp Ile Gly Gly Ile Asn Pro Gly Asn Asn Tyr Ala Thr Tyr Arg
65                  70                  75                 80

Arg Lys Phe Gln Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser
                85                  90                 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
            100                 105                110

Tyr Tyr Cys Thr Arg Glu Gly Tyr Gly Asn Tyr Gly Ala Trp Phe Ala
            115                 120                125

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys
        130                 135                 140

Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu
145                 150                 155                160

Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
```

14

```
                165                      170                      175

Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
            180                 185                 190

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
            195                 200                 205

Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn
    210                 215                 220

Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser
225                 230                 235                 240

Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly
            245                 250                 255

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
            260                 265                 270

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln
    275                 280                 285

Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val
    290                 295                 300

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr
305                 310                 315                 320

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
            325                 330                 335

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile
            340                 345                 350

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
            355                 360                 365

Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser
    370                 375                 380

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
385                 390                 395                 400

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
            405                 410                 415

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val
            420                 425                 430

Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met
            435                 440                 445

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
    450                 455                 460
```

15

Leu Gly Lys
465

<210>    31
<211>    2160
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    Full DNA sequence of grafted heavy chain

<220>
<221>

<400>    31
```
aagcttgccg ccaccatgga cttcggattc tctctcgtgt tcctggcact cattctcaag    60
ggagtgcagt gtgaggtgca attggtccag tcaggagcag aggttaagaa gcctggtgct   120
tccgtcaaag tttcgtgtaa ggctagcggc tacaggttca caattattg  gattcattgg   180
gtcaggcagg ctccgggaca aggcctggaa tggatcggtg gcattaatcc cgggaataac   240
tacgctacat ataggagaaa attccagggc agagttacga tgaccgcgga cacctccaca   300
agcactgtct acatggagct gtcatctctg agatccgagg acaccgcagt gtactattgt   360
actagagaag gctacggtaa ttacggagcc tggttcgcct actggggcca gggtacccta   420
gtcacagtct cctcagcttc tacaaagggc ccatccgtct tccccctggc gccctgctcc   480
aggagcacct ccgagagcac agccgccctg ggctgcctgg tcaaggacta cttccccgaa   540
ccggtgacgg tgtcgtggaa ctcaggcgcc ctgaccagcg gcgtgcacac cttcccggct   600
gtcctacagt cctcaggact ctactccctc agcagcgtgg tgaccgtgcc ctccagcagc   660
ttgggcacga gacctacac  ctgcaacgta gatcacaagc ccagcaacac caaggtggac   720
aagagagttg gtgagaggcc agcacaggga gggagggtgt ctgctggaag ccaggctcag   780
ccctcctgcc tggacgcacc ccggctgtgc agccccagcc cagggcagca aggcatgccc   840
catctgtctc ctcacccgga ggcctctgac caccccactc atgcccaggg agagggtctt   900
ctggattttt ccaccaggct ccgggcagcc acaggctgga tgcccctacc ccaggccctg   960
cgcatacagg ggcaggtgct gcgctcagac ctgccaagag ccatatccgg gaggaccctg  1020
cccctgacct aagcccaccc caaaggccaa actctccact ccctcagctc agacaccttc  1080
tctcctccca gatctgagta actcccaatc ttctctctgc agagtccaaa tatggtcccc  1140
catgcccacc atgcccaggt aagccaaccc aggcctcgcc ctccagctca aggcgggaca  1200
ggtgccctag agtagcctgc atccagggac aggccccagc cgggtgctga cgcatccacc  1260
tccatctctt cctcagcacc tgagttcctg gggggaccat cagtcttcct gttcccccca  1320
aaacccaagg acactctcat gatctcccgg acccctgagg tcacgtgcgt ggtggtggac  1380
gtgagccagg aagaccccga ggtccagttc aactggtacg tggatggcgt ggaggtgcat  1440
aatgccaaga caaagccgcg ggaggagcag ttcaacagca cgtaccgtgt ggtcagcgtc  1500
ctcaccgtcc tgcaccagga ctggctgaac ggcaaggagt acaagtgcaa ggtctccaac  1560
aaaggcctcc cgtcctccat cgagaaaacc atctccaaag ccaaaggtgg acccacggg   1620
gtgcgagggc cacatggaca gaggtcagct cggcccaccc tctgccctgg gagtgaccgc  1680
tgtgccaacc tctgtcccta cagggcagcc ccgagagcca caggtgtaca ccctgccccc  1740
atcccaggag gagatgacca agaaccaggt cagcctgacc tgcctggtca aaggcttcta  1800
ccccagcgac atcgccgtgg agtgggagag caatgggcag ccggagaaca actacaagac  1860
cacgcctccc gtgctggact ccgacggctc cttcttcctc tacagcaggc taaccgtgga  1920
caagagcagg tggcaggagg ggaatgtctt ctcatgctcc gtgatgcatg aggctctgca  1980
caaccactac acacagaaga gcctctccct gtctctgggt aaatgagtgc cagggccggc  2040
aagccccgc  tccccgggct ctcggggtcg cgcgaggatg cttggcacgt accccgtcta  2100
catacttccc aggcacccag catggaaata aagcacccac cactgccctg gctcgaattc  2160
```

<210>    32
<211>    94

16

```
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gH1 T1

<220>
<221>

<400>    32
agtgtgaggt gcaattggtc cagtcaggag cagaggttaa gaagcctggt gcttccgtca    60
aagtttcgtg taaggctagc ggctacaggt tcac    94

<210>    33
<211>    96
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gH1 T2

<220>
<221>

<400>    33
gtggcattaa tcccgggaat cagtacacta catataaaag aaatctaaag ggcagagcaa    60
cgctgaccgc ggacacctcc acaagcactg tctaca    96

<210>    34
<211>    95
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gH1 T3

<220>
<221>

<400>    34
agagaaggct acggtaatta cggagcctgg ttcgcctact ggggccaggg taccctagtc    60
acagtctcct cagcttctac aaagggccca agaaa    95

<210>    35
<211>    94
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544 gH1 B1

<220>
<221>

<400>    35
```

```
ggaccaattg cacctcacac tgcactccct tgagaatgag tgccaggaac acgagagaga      60
atccgaagtc catggtggcg gcaagctttt attc                                  94
```

<210>    36
<211>    97
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gH1 B2

<220>
<221>

<400>    36
```
gattcccggg attaatgcca ccgatccatt ccaggccttg tcccggagcc tgcctgaccc      60
aatgaatcca ataatttgtg aacctgtagc cgctagc                                97
```

<210>    37
<211>    93
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gH1B3

<220>
<221>

<400>    37
```
cgtaattacc gtagccttct ctagtacaat agtacactgc ggtgtcctcg gatctcagag      60
atgacagctc catgtagaca gtgcttgtgg agg                                    93
```

<210>    38
<211>    21
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gH1 F1

<220>
<221>

<400>    38
```
gaataaaagc ttgccgccac c                                                 21
```

<210>    39
<211>    22
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gH1 R1

18

```
<220>
<221>

<400>    39
tttcttgggc cctttgtaga ag                                               22

<210>    40
<211>    87
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gL1 T1

<220>
<221>

<400>    40
gcttcccggg gtgacgttca agtgacccag agcccatcca gcctgagcgc atctgtagga     60
gaccgggtca ccatcacttg tagatcc                                         87

<210>    41
<211>    90
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gL1 T2

<220>
<221>

<400>    41
tatctgcaca aaccaggtaa agccccacaa ttgctcatct acggaatctc taacagattt     60
agtggtgtac cagacaggtt cagcggttcc                                      90

<210>    42
<211>    91
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gL1 T3

<220>
<221>

<400>    42
agatttcgcc acttattact gtttacaagg tacacatcag ccgtacacat tcggtcaggg     60
tactaaagta gaaatcaaac gtacggcgtg c                                    91

<210>    43
<211>    88
<212>    DNA
<213>    Artificial Sequence
```

```
<220>
<223>    544gL1 B1

<220>
<221>

<400>    43
gaacgtcacc ccgggaagca ggaatccaga acaacagaag caccaacagc ctaacaggca    60
acttcatggt ggcggcttcg aatcatcc                                       88

<210>    44
<211>    88
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gL1 B2

<220>
<221>

<400>    44
ctttacctgg tttgtgcaga taccaagaca aaaaggtgtt cccataactg tttgcaagac    60
tctgactgga tctacaagtg atggtgac                                       88

<210>    45
<211>    90
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gL1B3

<220>
<221>

<400>    45
aacagtaata agtggcgaaa tcttctggct ggagagacga gatcgtgagg gtgaaatcag    60
taccacttcc ggaaccgctg aacctgtctg                                     90

<210>    46
<211>    20
<212>    DNA
<213>    Artificial Sequence

<220>
<223>    544gL1 F1

<220>
<221>

<400>    46
ggatgattcg aagccgccac                                                20
```

```
<210>    47
<211>    21
<212>    DNA
<213>    Artificial sequence

<220>
<223>    544gL1 R1

<220>
<221>

<400>    47
gcacgccgta cgtttgattt c                                            21

<210>    48
<211>    339
<212>    DNA
<213>    mouse

<220>
<223>    DNA sequence of mouse monoclonal 5/44 VL

<220>
<221>

<400>    48
gatgttgtgg tgactcaaac tccactctcc ctgcctgtca gctttggaga tcaagtttct    60
atctcttgca ggtctagtca gagtcttgca aacagttatg ggaacacctt tttgtcttgg   120
tacctgcaca agcctggcca gtctccacag ctcctcatct atgggatttc caacagattt   180
tctggggtgc cagacaggtt cactggcagt ggttcaggga cagatttcac actcaagatc   240
agcacaataa agcctgagga cttgggaatg tattactgct tacaaggtac acatcagccg   300
tacacgttcg gaggggggac caagctggaa ataaaacgt                          339

<210>    49
<211>    363
<212>    DNA
<213>    mouse

<220>
<223>    DNA sequence of mouse monoclonal 5/44 VH

<220>
<221>

<400>    49
gaggtccaac tgcagcagtc tgggactgta ctggcaaggc ctggggcttc cgtgaagatg    60
tcctgcaagg cttctggcta caggtttacc aactactgga ttcactgggt aaaacagagg   120
cctgggcagg gtctagaatg gattggtggt attaatcctg aaataatta tactacgtat    180
aagaggaact tgaagggcaa ggccacactg actgcagtca catccgccag cactgcctac   240
atggacctca gcagcctgac aagtgaggac tctgcggtct attactgtac aagagagggc   300
tatggtaact acggggcctg gtttgcttac tggggccagg ggactctggt caccgtctcc   360
tca                                                                 363

<210>    50
<211>    9
```

```
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   sequence within oligonucleotide primer

<400>   50
gccgccacc                                                          9

<210>   51
<211>   101
<212>   DNA
<213>   Artificial Sequence

<220>
<223>   5' oligonucleotide primer

<400>   51
gcgcgcaagc ttgccgccac catggacttc ggattctctc tcgtgttcct ggcactcatt   60
ctcaagggag tgcagtgtga ggtgcagctc gtcgagtctg g                      101


<210>   52
<211>   110
<212>   DNA
<213>   Artificial

<220>
<223>   gH4 oligonucleotide

<400>   52
ccgggaataa ctacgctaca tataggagaa atctaaaggg cagagcaacg ctgaccgcct    60

tattgatgcg atgtatatcc tctttagatt tcccgtctcg ttgcgactgg              110


<210>   53
<211>   20
<212>   PRT
<213>   Artificial

<220>
<223>   gH4 graft

<400>   53

Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Asn Leu Lys Gly Arg Ala
1                   5                   10                  15


Thr Leu Thr Ala
            20


<210>   54
```

```
<211>  110
<212>  DNA
<213>  Artificial

<220>
<223>  gH5 oligonucleotide

<400>  54
ccgggaataa ctacgctaca tataggagaa atctaaaggg cagagttacg atgaccgcct        60

tattgatgcg atgtatatcc tctttagatt tcccgtctca atgctactgg                   110


<210>  55
<211>  20
<212>  PRT
<213>  Artificial

<220>
<223>  gH5 graft

<400>  55

Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Lys Phe Gln Gly Arg Val
1                   5                   10                  15


Thr Met Thr Ala
            20


<210>  56
<211>  110
<212>  DNA
<213>  Artificial

<220>
<223>  gH6 oligonucleotide

<400>  56
ccgggaataa ctacgctaca tataggagaa aattccaggg cagagcaacg ctgaccgcct        60

tattgatgcg atgtatatcc tcttttaagg tcccgtctcg ttgcgactgg                   110


<210>  57
<211>  20
<212>  PRT
<213>  Artificial

<220>
<223>  gH6 graft

<400>  57
```

```
Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Lys Phe Gln Gly Arg Ala
1               5                   10                  15

Thr Leu Thr Ala
            20
```

<210>    58
<211>    110
<212>    DNA
<213>    Artificial

<220>
<223>    gH7 oligonucleotide

<400>    58
```
ccgggaataa ctacgctaca tataggagaa aattccaggg cagagttacg atgaccgcct      60

tattgatgcg atgtatatcc tcttttaagg tcccgtctca atgctactgg                110
```

<210>    59
<211>    20
<212>    PRT
<213>    Artificial

<220>
<223>    gH7 graft

<400>    59

```
Pro Gly Asn Asn Tyr Ala Thr Tyr Arg Arg Lys Phe Gln Gly Arg Val
1               5                   10                  15

Thr Met Thr Ala
            20
```

<210>    60
<211>    123
<212>    DNA
<213>    Artificial

<220>
<223>    gL2 oligonucleotide

<400>    60
```
ccggggtgac gttgtcgtga cccagagccc atccagcctg agcgcatctg taggagaccg      60

gccactgcaa cagcactggg tctcgggtag gtcggactcg cgtagacatc ctctggccca     120

gtg                                                                    123
```

24

<210> 61
<211> 23
<212> PRT
<213> Artificial

<220>
<223> gL2 graft

<400> 61

Ser Arg Gly Asp Val Val Val Thr Gln Ser Pro Ser Ser Leu Ser Ala
1               5                   10                  15

Ser Val Gly Asp Arg Val Thr
            20